Attorney's Docket No. 5576-125 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of Kubota et al.
Serial No.: To be Assigned
Filed: Concurrently Herewith
For: *RESIST MATERIAL AND METHOD FOR PATTERN FORMATION*

Date: May 8, 2001

BOX PATENT APPLICATION
Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

Prior to the examination of the above application, please amend the above-identified application as follows. Attached hereto is a marked up version of the changes made to the claims by the current amendment. The marked up version of the changes to the claims is captioned "**Version With Markings To Show Changes Made**".

In the Specification:

Please insert the following text on page 1, line 1:

- Cross-Reference to Related Applications

The present application claims priority to Japanese Patent Application No. 2000-139537 filed May 12, 2000, the disclosure of which is incorporated herein by reference in its entirety. -

In the Claims:

Please delete Claims 5-8 for the purposes of rewriting.

Please insert the following new claims.

9. A resist material according to claim 1 wherein said or more surfactants having a fluorine substituent is selected from the group consisting of perfluoroalkylpolyoxyethylene ethanol, fluorinated alkyl ester,

perfluoroalkylamine oxide, perfluoroalkylethylene oxide adduct, and fluorine-containing organosiloxane compounds.

10. A resist material according to claim 1 wherein said one or more surfactants having a fluorine substituent is present in an amount ranging from 10 to 2,000 ppm.

11. A resist material according to claim 1 wherein the weight ratio of the non-ionic surfactant having neither a fluorine substituent nor a silicon containing substituent to the surfactant containing a fluorine substituent is 0.1 or greater.

12. A resist material according to claim 11 wherein the weight ratio of the non-ionic surfactant having neither a fluorine substituent nor a silicon containing substituent to the surfactant containing a fluorine substituent ranges from 0.1 to 100.

13. A method for forming a pattern on a substrate comprising:

coating a resist material on a substrate, the resist material comprising one or more surfactants having a fluorine substituent and one or more non-ionic surfactants having neither a fluorine substituent nor a silicon-containing substituent;

subjecting the substrate to heat to treat the substrate;

exposing the substrate through a photomask to radiation selected from the group consisting of high energy radiation having a wavelength of 500 nm or less, X-ray radiation, and electron beam radiation;

optionally heat treating the substrate; and

developing the substrate in a developing solution.

14. A method according to claim 13 wherein said non-ionic surfactant is one or more compounds selected from the group consisting of polyoxyalkylene alkyl ether esters, polyoxyalkylene alkyl ether, polyoxyalkylene dialkyl ether, polyoxyalkylene aralkyl alkyl ether, polyoxyalkylene aralkyl ether, polyoxyalkylene diaralkyl ether, and polyoxyalkylene laurylates.

15. A method according to claim 13 wherein the resist material is a chemically amplified resist material.

16. A method according to Claim 14 wherein the resist material is a chemically amplified resist material.

Remarks

Claims 1-4 and 9-16 are presented for examination in the above-referenced application. Claims 5-8 are canceled for rewriting purposes and are re-drafted as Claims 13-16. Applicants respectfully request substantive examination on the merits.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Box Patent Application, Commissioner For Patents, Washington, DC 20231.

Marjorie J. Pfeiffer
Date of Signature: May 8, 2001

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Please insert the following text on page 1, line 1:

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In the Claims:

Please delete Claims 5-8 for the purposes of rewriting.

Please insert the following new claims, Claims 9-16.

9. A resist material according to claim 1 wherein said or more surfactants having a fluorine substituent is selected from the group consisting of perfluoroalkylpolyoxyethylene ethanol, fluorinated alkyl ester, perfluoroalkylamine oxide, perfluoroalkylethylene oxide adduct, and fluorine-containing organosiloxane compounds.

10. A resist material according to claim 1 wherein said one or more surfactants having a fluorine substituent is present in an amount ranging from 10 to 2,000 ppm.

11. A resist material according to claim 1 wherein the weight ratio of the non-ionic surfactant having neither a fluorine substituent nor a silicon containing substituent to the surfactant containing a fluorine substituent is 0.1 or greater.

12. A resist material according to claim 11 wherein the weight ratio of the non-ionic surfactant having neither a fluorine substituent nor a silicon

containing substituent to the surfactant containing a fluorine substituent ranges from 0.1 to 100.

13. A method for forming a pattern on a substrate comprising:

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subjecting the substrate to heat to treat the substrate;

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14. A method according to claim 13 wherein said non-ionic surfactant is one or more compounds selected from the group consisting of polyoxyalkylene alkyl ether esters, polyoxyalkylene alkyl ether, polyoxyalkylene dialkyl ether, polyoxyalkylene aralkyl alkyl ether, polyoxyalkylene aralkyl ether, polyoxyalkylene diaralkyl ether, and polyoxyalkylene laurylates.

15. A method according to claim 13 wherein the resist material is a chemically amplified resist material.

16. A method according to Claim 14 wherein the resist material is a chemically amplified resist material.